HEALTHY PERSONS HEALTHY NATION
Organizers – PFNDAI
Collaborator- Indian Dietetics Association (Mumbai Chapter)

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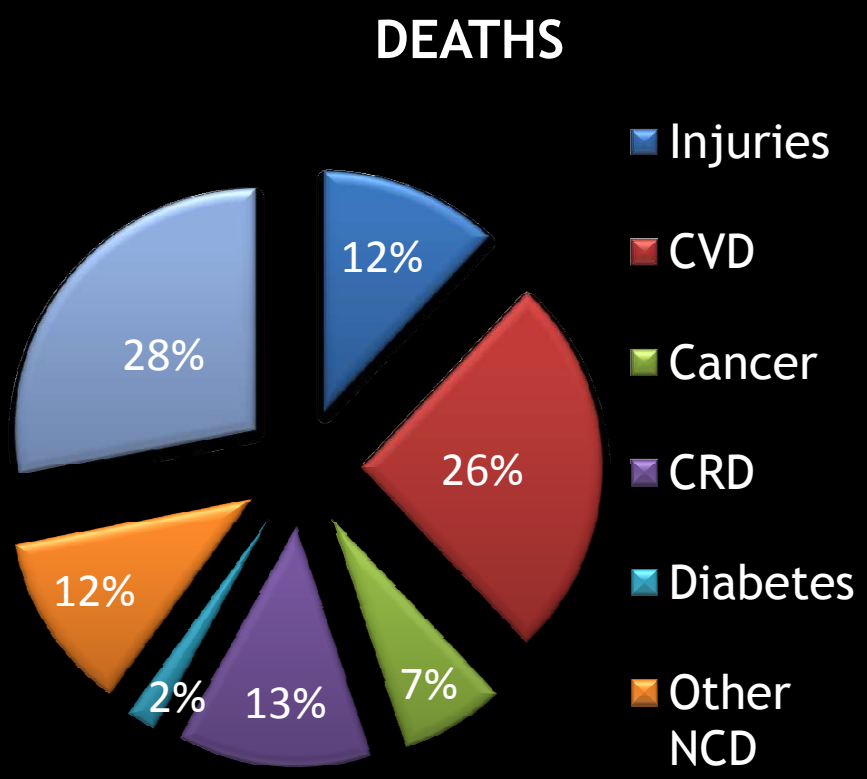
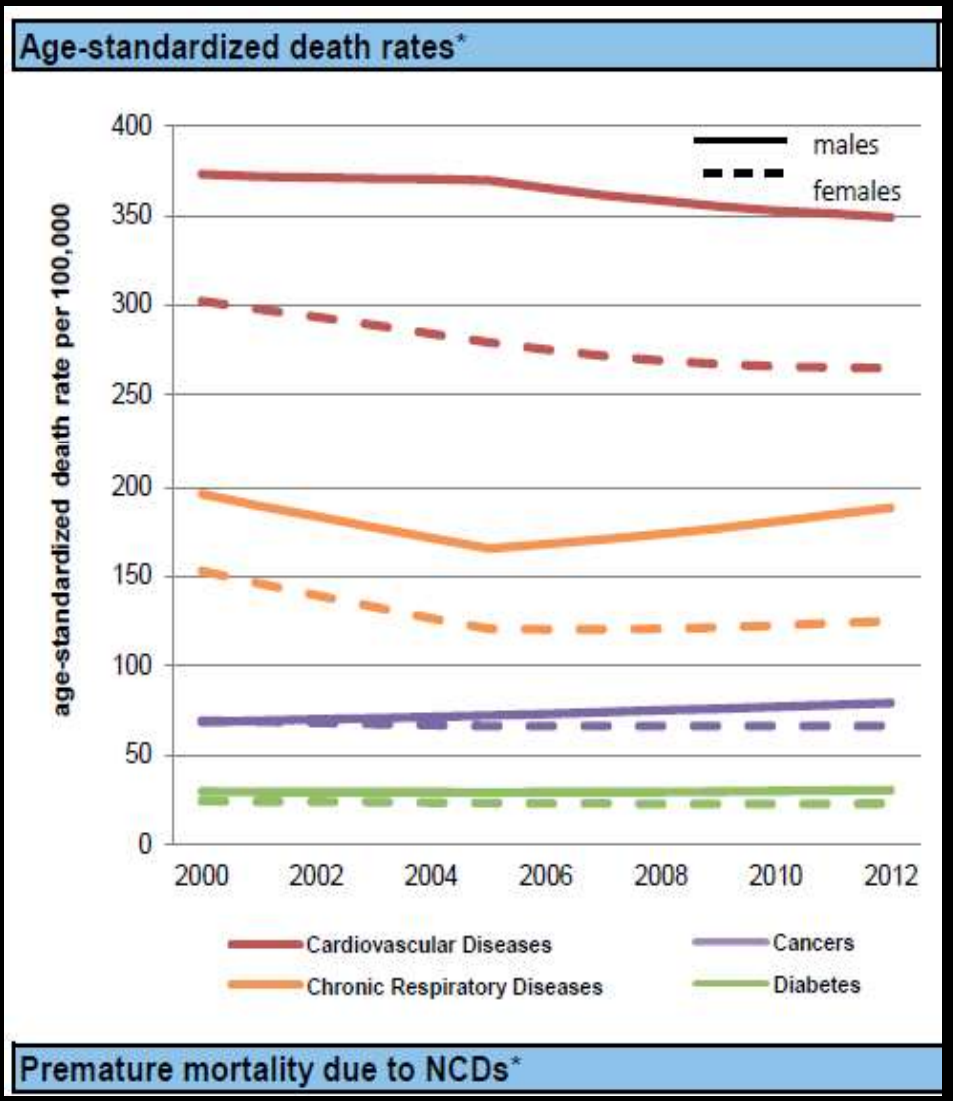
Mortality From NCD-India



NCD's are estimated to account for 60% of Total Deaths



World Health Organization - Noncommunicable Diseases (NCD) Country Profiles , 2014.

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Rural Vs Urban

	URBAN	URBAN SLUMS	RURAL
<25	71.5	80.43	89.23
25-30	21.7	14.16	9.05
>30	6.8	5.41	1.72
Heart Disease			
No	86.4	85.9	91.78
Yes	13.04	12.06	7.56
Diabetes			
No	75.54	88.4	87.48
Yes	23.96	11.6	12.24

Raghav.G et al, Affluence, Obesity and Non-Communicable Diseases in India, 2010

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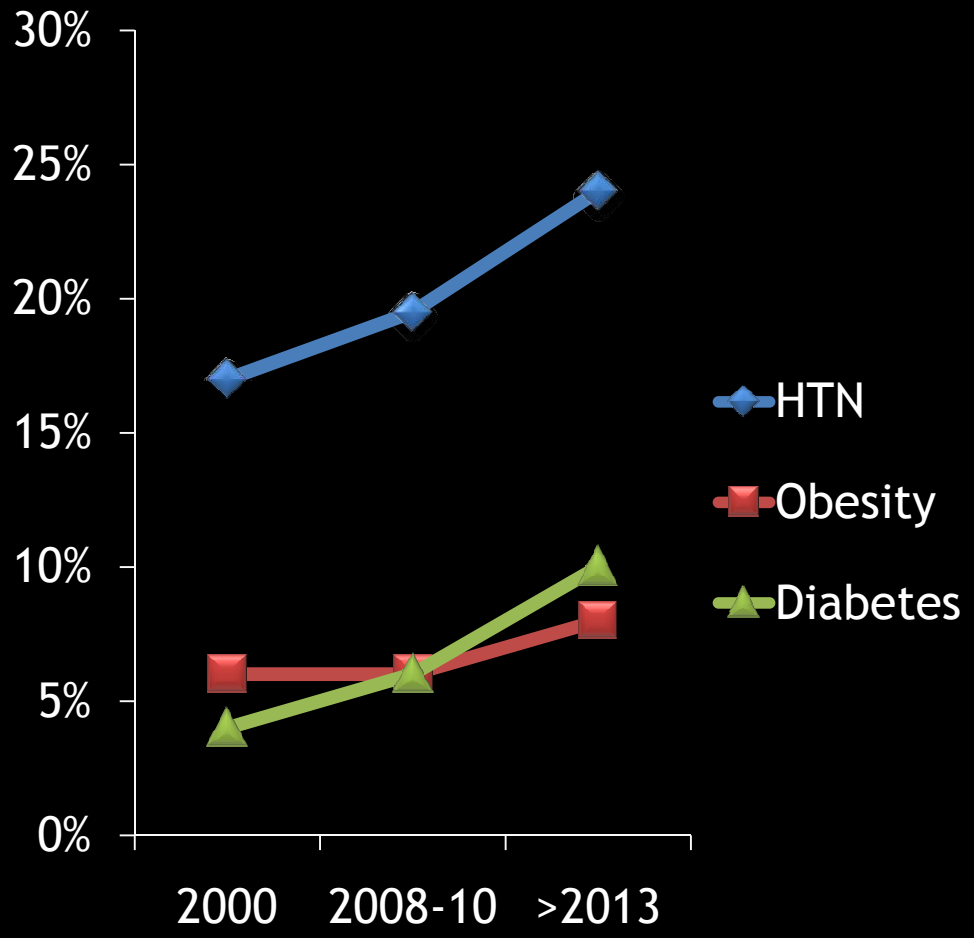
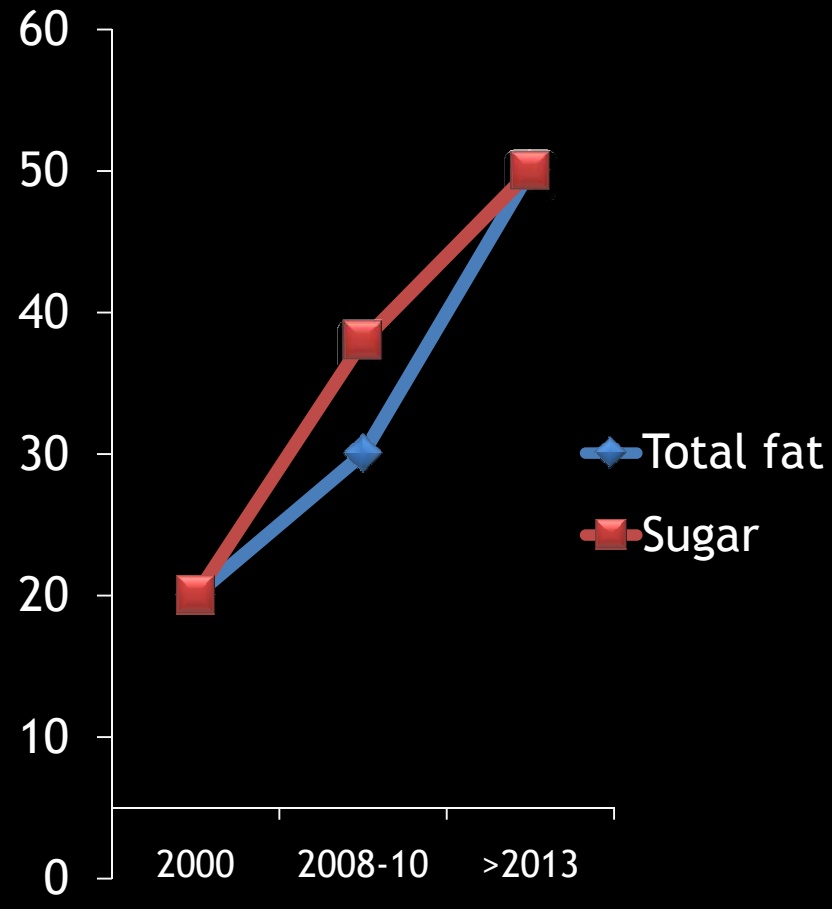
NCD Prevalence In India Vs Per Capita Consumption Of Fat & Sugar





Narendra K. et al, Whole-of-society monitoring framework for sugar, salt, and fat consumption and noncommunicable diseases in India, Annals of the New York Academy of Sciences, 2014; Vol 10, 1331

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ORIGINAL ARTICLE

Body Fat Percentage and Its Correlation with Dietary Pattern, Physical Activity and Life-style Factors in School-going Children of Mumbai, India

Jagmeet Madan, Neha Gosavi, Paarmi Vora, Princee Kalra

Table 6: Correlation of dietary determinants with BMI and BF percentage of school going children

Total *n*=764	*p* value ≤			
	Private school *n*=412		Government school *n*=352	
Food item	BMI	BF %	BMI	BF %
Milk	0.058*	0.227	0.379	0.023*
Fruits	0.487	0.238	0.151	0.001*
Cooked vegetable	0.002*	0.472	-	-
Salad consumption	0.383	0.038*	0.242	0.001*
Quantity of salad	0.041*	0.043*	0.014*	0.031*
Frequency of eating out	0.541	0.09	0.042*	0.001*
Carrying packed lunch	0.703	0.365	0.036*	0.001*
Aerated drinks	0.231	0.14	0.116	0.05
Vada/samosa	0.597	0.68	0.452	0.338
Bakery	-	-	0.001*	0.001*
Khari	-	-	0.001*	0.001*

BMI: Body mass index, BF: Body fat, **marked are significant*

Table 8: Correlation of lifestyle determinants with BMI and BF percentage of school going children

Total *n*=764	*P* value ≤			
	Private school *n*=412		Government school *n*=352	
Lifestyle	BMI	BF %	BMI	BF %
Participation in sports	0.661	0.545	0.001*	0.001*
Recreational activity	0.173	0.013*	-	-
TV viewing	0.967	0.116	0.001*	0.013*
Computer	-	-	0.003*	0.001*
Sleep hours	0.361	0.227	0.002*	0.001*

BMI: Body mass index, BF: Body fat, TV: Television, **marked are significant*

Table 9: Mean BF percentage and sleep duration in school going children

Sleep duration in hours	Mean BF			
	Private school (*n*=400)		Government school (*n*=354)	
<6 h	74	20.47±8.81	72	11.10±5.88
6–8 h	198	17.23±10.18	175	10.96±6.41
>8 h	128	15.94±9.65	107	13.99±7.73

BF: Body fat

Madan et al, Body fat percentage and its correlation with dietary pattern, physical activity and lifestylre factors in school-going children of Mumbai, India, JOMR, 2014

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Prevalence Of Metabolic Syndrome In Mumbai City, India

Key Findings

- **82%** : Overweight & Obese
- **70.3%** : Waist Circumference of ≥90 cm
- **36%** : Prehypertensives
- **40%** :Dysglycemia
- **34%** : ↑ TG
- **26%** :↑ TC
- **64%** : ↑ serum LDL-C
- **66%** : ↓ serum HDL-C

journalomr_31_15R1

ORIGINAL ARTICLE

Prevalence of Metabolic Syndrome in Mumbai City, India

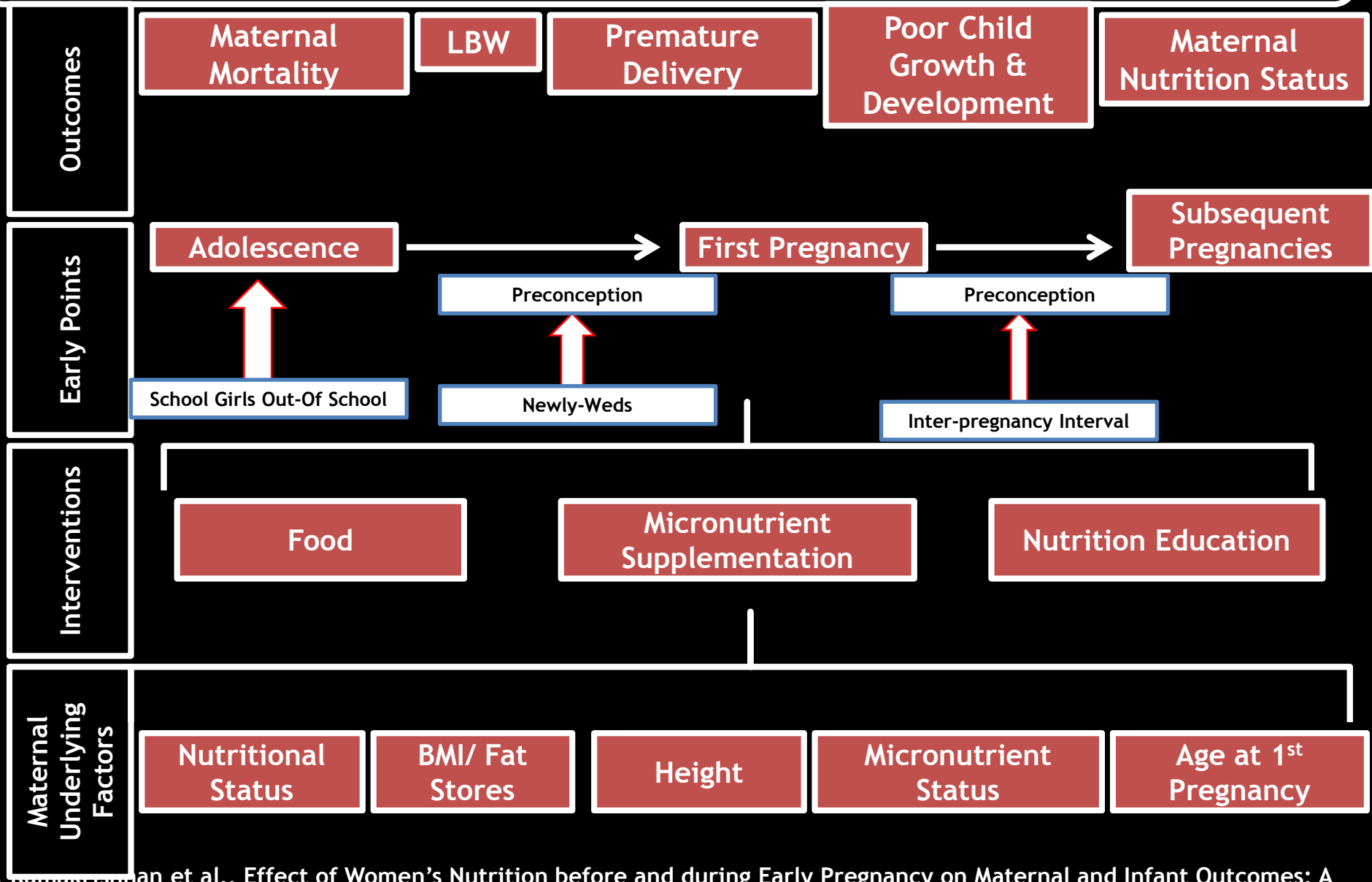
Jagmeet G. Madan, Ankita M. Narsaria[1]

ABSTRACT

Background: Metabolic syndrome (MetS) is a complex web of metabolic factors that are associated with a 2-fold risk of cardiovascular diseases and a 5-fold risk of diabetes. There are lacunae of Indian studies regarding its prevalence with special reference to metropolitan cities such as Mumbai, India. **Aim:** To determine the prevalence of MetS in apparently healthy adult male population from Mumbai city based on their anthropometric, biochemical, and clinical health markers. **Materials and Methods:** This study was a cross-sectional study comprising 313 apparently healthy adult males aged 18–65 years from upper–middle-income group from different locales of Mumbai. A standardized pretested questionnaire was used to collect data regarding demographic characteristics, anthropometric parameters, and biochemical and clinical health markers using standardized methods. The data were analyzed using SPSS statistical software. Any observed difference was considered statistically significant with $P < 0.05$. **Results:** The mean age of the subjects was 46 years. The prevalence of MetS was 40% with 82% of the population surveyed being overweight and obese and 70.3% of the population with waist circumference of ≥90 cm. It was observed that 36% of the subjects were prehypertensives and 23.4% had systolic and/or diastolic blood pressures ≥140/90 mmHg. Almost 40% of the subjects had dysglycemia with 34% of the subjects with high triglycerides, 26% with high total cholesterol, 64% with raised serum low-density lipoprotein cholesterol, and almost 66% with low serum high-density lipoprotein cholesterol levels. A significant positive correlation was observed between anthropometric and biochemical markers. **Conclusion:** In apparently healthy adult population of Mumbai, the prevalence of MetS was 40%. A significant positive correlation was observed between anthropometric, clinical, and biochemical markers. The study highlights the need for intervention to lower the risk markers predisposing the urban population to noncommunicable diseases.

Key words: Metabolic syndrome, noncommunicable disease, prediabetes, prehypertensives

Maternal Nutrition: Conceptual Framework Of Stages Of Pregnancy Affected By Nutrition



U. Ramakrishnan et al., Effect of Women's Nutrition before and during Early Pregnancy on Maternal and Infant Outcomes: A Systematic Review, Paediatric and Perinatal Epidemiology, 2012, 26 (Suppl. 1), 285-301

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Burden of NCD In The 20th Century

• 60% of total health expenditure- paid by common man

• Current rate in India: 1.86% of GDP; Ideal to meet basic healthcare amenities : 5-6% of GDP

1) Effect on Economy:
↓ Productivity → ↓ Human Resources→ Weaker economy
↑ Inflation, ↓ tax revenues
→ ↑ cost of medicines & long duration of treatment, ↓ government subsidy & healthcare expenditure

• ↓ availability of money for Quality Eating & Wholesome Eating
• 39 million Indians are pushed to poverty because of ill health yearly

•↑ availability & intake of foods & beverages high in salt, SFA, TFA, r efined starch & sugar

2) Social Effects:
Changes in personal behaviour, ↑ ignorance → ↓ access to basic healthcare amenities & ↑ urbanization & westernization

Indians in villages and non-urban areas don't have access to healthcare facilities

3) Nutritional & Agricultural Effects:
↑ Food prices & ignorance → ↓ nutrient-dense food consumption → Poor Health Status

Output & impots of food→ food prices→ farm & non-farm employment & non-food (healthcare) expenditure

↓ Maternal Nutrition
↓
Effect on feotal nutrition
↓
NCD

re-nutrition pathways in India , Ann. N.Y. Acad. Sci. 1331 (2014) 43-56, *NCD ALLIANCE BRIEFING PAPE*
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ultation paper, Jointly released by the Partnership to Fght Chronic Disease (PFCD) and Strategic Par
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tegic Partners Group (SPAG Asia) , May 2015

Wanted: A roadmap to tackle NCD in India

Non-Communicable Diseases

WHO "Global monitoring framework on NCDs''

WHO Global monitoring framework on NCDs,

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School Canteen : Guidelines By FSSAI

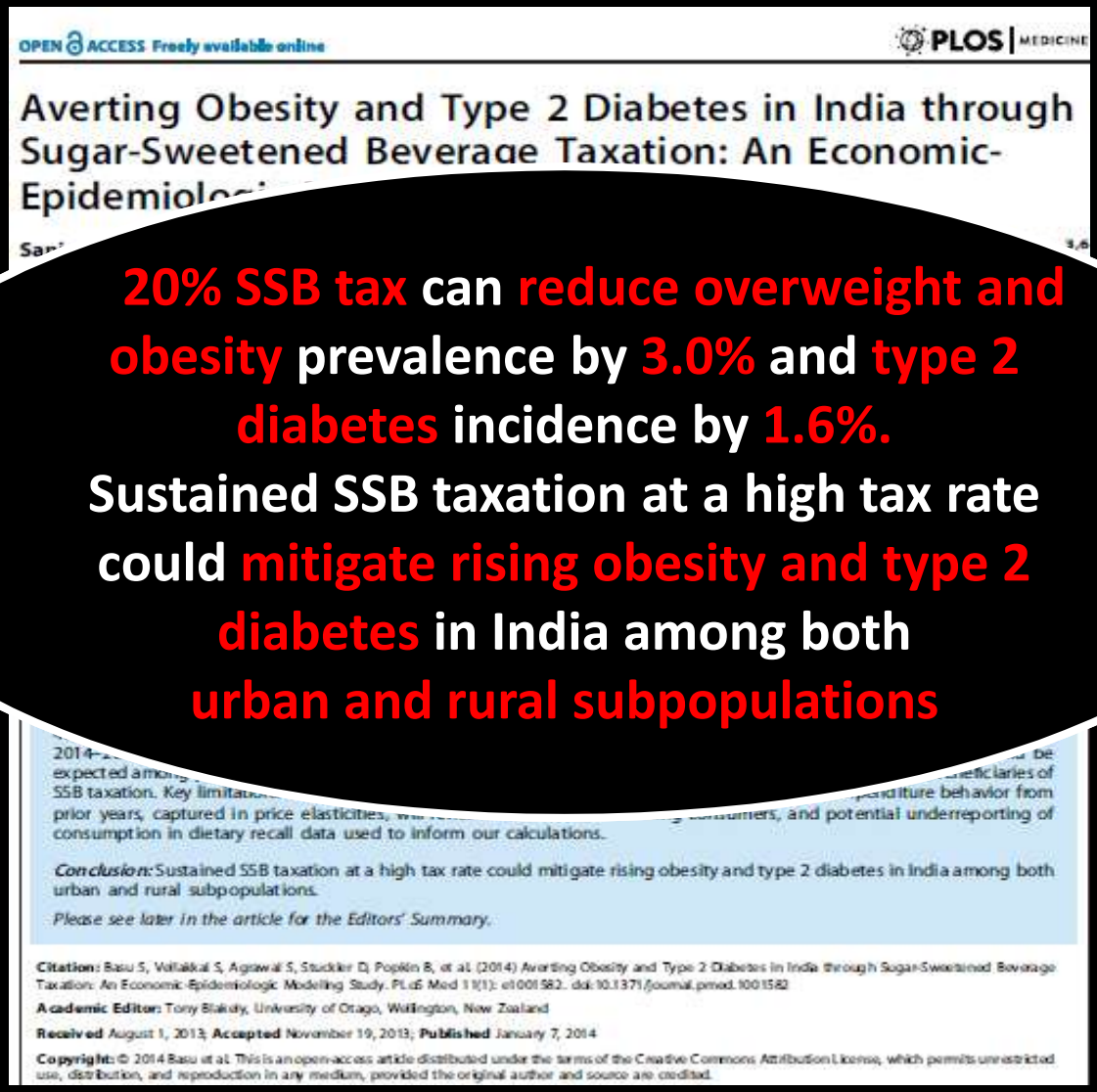
Develop a Canteen Policy to provide Nutritious, Wholesome and Healthy Food in Schools

Labeling Regulations to enable disclosure of all Relevant Information

Colour code	Availability	Examples
Green	Always on the menu(atleast 80% of available food items)	Vegetables & legumes, fruits, grain foods; preferably wholegrain &/or high in fibre, lean meat, egg, fish, low fat milk, curd, paneer etc.
Yellow	Select carefully Approach should be greening small portion size and reduces frequency	Baked vegetable based snacks, ice creams, milk based & dairy deserts etc
Red	Restrict/Limit Availabilty in schools	HFSS foods

FSSAI Draft Guidelines for making available, safe and hygeinic food to school children in India, 2015-16wholesome, nutritious

Taxing Sugar Sweetened Beverages(SSB)



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PLOS | MEDICINE

Averting Obesity and Type 2 Diabetes in India through Sugar-Sweetened Beverage Taxation: An Economic-Epidemiol

20% SSB tax can reduce overweight and obesity prevalence by 3.0% and type 2 diabetes incidence by 1.6%.

Sustained SSB taxation at a high tax rate could mitigate rising obesity and type 2 diabetes in India among both urban and rural subpopulations

...expected among ... beneficiaries of SSB taxation. Key limitat... expenditure behavior from prior years, captured in price elasticities, ... consumers, and potential underreporting of consumption in dietary recall data used to inform our calculations.

Conclusion: Sustained SSB taxation at a high tax rate could mitigate rising obesity and type 2 diabetes in India among both urban and rural subpopulations.

Please see later in the article for the Editors' Summary.

Citation: Basu S, Vellakkal S, Agrawal S, Stuckler D, Popkin B, et al. (2014) Averting Obesity and Type 2 Diabetes in India through Sugar-Sweetened Beverage Taxation: An Economic-Epidemiologic Modeling Study. PLoS Med 11(1): e1001582. doi:10.1371/journal.pmed.1001582

Academic Editor: Tony Blakely, University of Otago, Wellington, New Zealand

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Basu S, et al. (2014) Averting Obesity and Type 2 Diabetes in India through Sugar-Sweetened Beverage Taxation: An Economic-Epidemiologic Modeling Study. PLoS Med 11(1): e1001582. doi:10.1371/journal.pmed.1001582

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Sodium Regulation

The Next Agenda: FSSAI to Regulate Fat, Sugar and Salt Content in Indian Food Products

A concerted effort to reduce Sodium content in processed foods by MNC's

WAY FORWARD

- NEED OF THE HOUR – NUTRITIONIST- INDUSTRY INTERFACE
- FOOD CHOICES/OPTIONS – SCIENCE-TECHNOLOGY INNOVATION GLOBAL TO LOCAL
- ACADEMIC INDUSTRY PARTNERSHIP FOR TRAINING STUDENTS TOWARDS NUTRITION AND HEALTH SOLUTIONS- PRODUCT DEVELOPMENT BY FUNCTIONALIZING FOODS; SPECIALITY INGREDIENTS; TRADITIONAL PREPERATIONS
- PRIME FOCUS ON CHILDREN & ADOLESCENTS

Lets Join Hands to Make India a Healthy Nation

Thank you

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